

## REMARKS

The Application has not been amended.

Claims 1-15 remain pending in the application. Claim 16 was previously withdrawn. Reconsideration and allowance of all of the claims is respectfully requested in view of the following remarks.

### In regard to Rejection of Claims 1, 2, 4 and 7-9 Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1, 2, 4 and 7-9 under 35 U.S.C. § 103(a), as being unpatentable over Fukumura '052, U.S. Patent No. 5,834,052. The Applicants disagree.

The Examiner's attention is directed to the following feature of claim 1:

(c) concurrently extruding said electrolyte slurry in the form of a thin electrolyte sheet [...], said thin electrolyte sheet being extruded directly onto said thin electrode sheet.

The Applicants submit that at least the above feature of claim 1 is not taught by Fukumura '052.

Referring to lines 39-44 of column 3 of Fukumura '052, describing the embodiment shown in Figure 1 of Fukumura '052,

The slot outlets are disposed such that a gap is kept between a base material 2 running along the surface of a coating roller 1 and the slot outlets, and the coating solution for the electrode material discharged from the slot outlets are coated on the base material 2 in layers while forming a bead between the lips and the base material 2.

Referring to lines 3-10 of column 5 of Fukumura '052, describing the embodiment shown in Figure 2 of Fukumura '052,

The end portion of the slide portion 18 is disposed such that a gap is kept between the end portion and a base material 2 running along the surface of a coating roller 1 and the coating solutions for electrode material flowed down along the slide portion 18 in layers are coated on the base material 2 while

forming a bead between the end portion of the slide portion and the base material 2.

Referring to lines 31-35 of column 5 of Fukumura '052, describing the embodiment shown in Figure 3 of Fukumura '052,

Coating solutions for electrode material are discharged from the slots 8 and 9 of the extrusion die and coated on a base material 2 continuously run while forming a bead between the end portion of the lips of the extrusion die portion and the base material 2.

Referring also to Figures 1, 2 and 3 of Fukumura '052, it is apparent that Fukumura '052 teaches extruding materials while forming a bead between the end portion of the lips of the extrusion die and the base material 2.

Referring now to lines 45-46 of column 3 of Fukumura '052,

For stably forming the bead, it is preferred that the coater in this invention has a vacuum chamber 19.

It is apparent that Fukumura '052 teaches a vacuum chamber 19 to ensure the stability of the bead that is formed by the extrusion process taught by Fukumura '052.

As such, each of the embodiments of Fukumura '052 teaches extruding a material in the form of a bead and not extruding material in the form of a sheet directly onto another sheet. Therefore, Fukumura '052 does not teach extruding an electrolyte slurry in the form of a thin electrolyte sheet, the thin electrolyte sheet being extruded directly onto a thin electrode sheet.

This deficiency in Fukumura '052 is not remedied by the Examiner's contention that

a person of ordinary skill in the art would have found it obvious to have used a lithium salt containing protective layer but without the active material, and would have been motivated to do so in order to use substantially similar materials that would adhere/bond well to one another

nor by the Examiner's contention that

extruding onto to both sides of a preform/support that is passed through the extrusion die is well known in the extrusion art. At

the time of invention a person of ordinary skill in the art would have found it obvious to have used a dies that extrudes onto to both sides of a collector/support wherein a preform/support is passed through the die, as commonly practiced in the art, in the process of Fukumura et al., and would have been motivated since Fukumura et al. suggests that coating both sides of the collector/foil is "typical".

The Applicants take no position at this time as to the correctness of the Examiner's contentions, and reserve the right to argue thereagainst in the future.

Therefore, at least one element of claim 1 is not taught by Fukumura '052 or the Examiner's contentions, without admitting the correctness of the Examiner's contentions. As such, the Examiner is requested to withdraw his rejection of claim 1 and claims 2, 4 and 7-9 depending therefrom.

In regard to Rejection of Claims 3, 5, 6, 10 and 11 Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 3, 5, 6, 10 and 11 under 35 U.S.C. § 103(a), as being unpatentable over Fukumura '052 in view of Fukumura '556, U.S. Patent No. 5,674,556. The Applicants disagree.

The Examiner's attention is directed to the following feature of claim 1:

(e) concurrently extruding said electrolyte slurry in the form of a thin electrolyte sheet [...], said thin electrolyte sheet being extruded directly onto said thin electrode sheet.

As discussed above with respect to claims 1, 2, 4 and 7-9, the above feature of claim 1 is not taught by Fukumura '052. The Applicants submit that this deficiency in Fukumura '052 is not remedied by Fukumura '556, without admitting that the two references can be combined and reserving the right to argue thereagainst in the future.

Referring to lines 1-13 of column 8 of Fukumura '556,

As the electrolytic solution, for example, a solution which composes at least one aprotic organic solvent as organic solvent (such as propylene carbonate, ethylene carbonate, butylene carbonate, dimethyl carbonate, diethyl carbonate, gamma-butyrolactone, 1,2-dimethoxyethane, and mixture thereof) and at least one lithium salt which is soluble to the organic solvent

(such as  $\text{LiClO}_4$ ,  $\text{LiBF}_4$ ,  $\text{LiPF}_6$ ,  $\text{LiCF}_3\text{SO}_3$ ,  $\text{LiCF}_3\text{CO}_2$ , and  $\text{LiAsF}_6$ ) can be mentioned. Among the above electrolyte solutions, the electrolyte solution composing  $\text{LiCF}_3\text{SO}_3$ ,  $\text{LiClO}_4$ ,  $\text{LiBF}_4$ , and/or  $\text{LiPF}_6$  in the mixture of propylene carbonate or ethylene carbonate, and 1,2-dimethoxyethane and/or diethyl carbonate is preferable.

Referring also to lines 22-24 of column 9 of Fukumura '556,

Further, 1 mol/liter of  $\text{LiPF}_6$  (in a solution of 1:1 (v/v) mixture of ethylene carbonate and dimethyl carbonate), as an electrolytic solution, was injected into the cell can.

It is apparent that Fukumura '556 teaches using an electrolyte solution, and makes no mention of extruding an electrolyte in the form of a thin electrolyte sheet. Therefore, Fukumura '556 does not teach extruding an electrolyte slurry in the form of a thin electrolyte sheet, the thin electrolyte sheet being extruded directly onto a thin electrode sheet.

Therefore, at least one element of claim 1 is not taught by Fukumura '052 or Fukumura '556, alone or in combination, which combination is not admitted. As such, the Examiner is requested to withdraw his rejection of claims 3, 5, 6, 10 and 11 depending therefrom.

In regard to Rejection of Claims 12-15 Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 12-15 under 35 U.S.C. § 103(a), as being unpatentable over Fukumura '052 in view of Applicant's admitted prior art. The Applicants disagree.

The Examiner's attention is directed to the following feature of claim 1:

(c) concurrently extruding said electrolyte slurry in the form of a thin electrolyte sheet [...], said thin electrolyte sheet being extruded directly onto said thin electrode sheet.

As discussed above with respect to claims 1, 2, 4 and 7-9, the above feature of claim 1 is not taught by Fukumura '052. The Applicants submit that this deficiency in Fukumura '052 is not remedied by the Examiner's contention that

controlling layer thicknesses using various measuring devices (e.g. optical, ultra-sonic, etc.) is known to those skilled in the

art and extruded to ensure strict tolerances (para. 28). At the time of invention a person of ordinary skill in the art would have found it obvious to have used any of the various measuring devices, as taught by applicant's admission, in the process of Fukumura et al., and would have been motivated to do so in order to achieve desired layer thicknesses within a specific thickness tolerance.

The Applicants take no position at this time as to whether the Examiner's contention represents subject matter that the Applicants have admitted to be prior art, and reserve the right to argue thereagainst in the future.

Therefore, at least one element of claim 1 is not taught by Fukumura '052 or the Examiner's contentions, without admitting the correctness of the Examiner's contentions. As such, the Examiner is requested to withdraw his rejection of claims 12-15 depending therefrom.

In view of the above remarks, the Applicants respectfully submit that all of the currently pending claims are allowable and that the entire application is in condition for allowance.

Should the Examiner believe that anything further is desirable to place the application in a better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

At the time of filing of the present response, no fees were believed to be necessary. In case any fee should be necessary, the Office is hereby authorized to debit Deposit Account number 502977.

Respectfully submitted,

/Jonathan David Cutler/

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